Bicycle technologies and cycling cultures

BICYCLE TECHNOLOGIES AND CYCLING CULTURES

Harry Oosterhuis

The bicycle as a mechanism

Is the history of the bicycle the history of its technology? That is what two historians of technology, Tony Hadland and Hans-Erhard Lessing, suggest in their recent work *Bicycle Design: An Illustrated History*, published in 2014 by the renowned MIT Press. Starting with the 'Draisine' or 'running-machine', which was invented 200 years ago, the authors provide a detailed overview of the vehicle's technological evolution until today. The idea of fixing cranks and pedals to the front axle of a two-wheeler and balancing while pedalling was a major breakthrough: this was the velocipede, introduced in the mid-1860s. It was followed in the 1870s by the high-wheeler with the sizeable front-wheel and small rear-wheel, as well as by various tri- and quadricycles. The 1890s saw the advance of the so-called safety bicycle with its chain driven rear-wheel, diamond-shaped frame and pneumatic rubber tires, which is the standard model to this day.

Draisine

Velocipede

High-wheeler

Safety bicycle

Hadland and Lessing have compiled a huge amount of information on bicycle engineering, but their bold claim that the machine's technical history has been neglected and that they have filled this gap, is unwarranted. They ignore earlier studies which have not only covered bicycle-technology, but also the socio-cultural dimension of pedalling and the experiences of wheelers. Their approach is rooted in technological determinism. This implies an exclusive focus on technology as the decisive factor in the development of the bicycle. This is in fact a backward move away from the 'sociocultural turn' in bicycle history for which Wiebe set the tone more than twenty years ago.

The bicycle as sociotechnical construction

Strikingly, Hadland and Lessing do not mention Wiebe's pioneering work in this field at all. The late nineteenth-century transition from the high-wheeler to the safety is the first case-study in his dissertation *Of Bicycles, Bakelites, and Bulbs: Toward a Theory of Sociotechnical Change*, which the same MIT Press published in 1995. Wiebe addressed questions which Hadland and Lessing do not ask. Who used the machines and in what ways? What did pedalling mean to them and to the public at large? He demonstrated that the bike's introduction and adoption in society cannot be understood in a deterministic way, as the inevitable result of a self-propelling succession of technological innovations only, but that the social setting has to be considered. The high-wheeler was not a thing with a given purpose and the same possibilities for all people. For most of them – senior men, women and children – riding it was simply not an option. Not only was it an expensive luxury item, cycling also required considerable sportive agility and guts. It was risky: crashes were not rare. For this very reason the high-wheeler was a challenging 'danger-machine' for athletic young macho's who liked speed and thrill. Other not so fearless wheelers pedalled calmly on safer, physically less demanding tri- and quadricycles. All of this shows, Wiebe argues, that the diversity in the vehicle's material shape at that time reflected various needs and experiences of different social groups.

Wiebe's bicycle story ends around 1900, when the safety had proved to be more accessible, comfortable and secure as well as faster than the high-wheeler. The first merits were decisive for the average (would-be) cyclist and the second one was crucial for the wheeling macho. Thus a common view emerged among engineers, producers and riders about the bike's optimal design. Such a consensus brought about what Wiebe calls 'stabilization' and 'closure': the establishment of the standard and still familiar shape of the two-wheeler. The success of the safety narrowed down the divergent shapes and meanings of pedal-driven vehicles and paved the way for the widespread adoption of cycling as a means of transport.

However, does such a closure in cycle engineering signify, as Wiebe suggests, that the vehicle was no longer a different thing for different people? That wheeling became a more or less uniform practice all over the Western world? And that cycling history is not

very exciting any more once the fundamental technological breakthroughs have been realized? Wiebe's story seems to imply that bicycles are open for divergent meanings only as long as their technology is still in the making. Once a particular model had become the most successful one, the bike lost its sociocultural malleability. Thus Wiebe intimates that this phase in cycle engineering was different from the preceding ones. Do we still find a trace of technological determinism in his argument? His final frame of reference remains technological change – which is understandable in the light of his more general ambition to explain tools and devices as social constructions.

Cycling as sociocultural experience

This is the point where I follow another course. I am primarily interested in the sociocultural and political dimension of cycling *practices*. Even more than the late nineteenth-century, when cycles were used for sports, leisure and conspicuous consumption by the well-to-do, the twentieth century witnessed a wide variety of bicycle experiences based on diverse motivations, attitudes and habits. Such differences were related to class, status, gender, age, ethnicity and national culture.

In the decades around 1900 the two-wheeler, as an optimal symbiosis of man and innovative technology, was broadly viewed as a modern 'freedom machine'. Cyclists participated in dynamic modernity, a new experience of time and space, while at the same time keeping balance and inner tranquility. The 'mechanical horse' facilitated flexible individual mobility at an unprecedented speed and widened the rider's mental horizon. For townsfolk it was also a 'relaxation device' which provided healthy compensation for the routines and stress of daily life. Touring in the countryside advanced recreation in nature and tourism. The bicycle was used to discover one's fatherland and foreign countries. For women the bicycle could be an emancipatory vehicle. It enlarged their independent mobility and loosened constrictive dress codes.

The effects of the bicycle as a practical means of transport were even more far-reaching. As a substitute for the horse, it was introduced in postal services, police and fire departments, and the army. Traders, shopkeepers, artisans, doctors and clergymen used it for transporting goods and offering their services. In some countries bikes were employed to bridge long distances in barren areas for economic exploits. The two-wheeler enabled a longer distance between home and work, and thus contributed to the emergence of suburbs. In the countryside it was a socializing vehicle which ended local isolation. Schooling and dating opportunities broadened. Distant relatives and friends, new consumption options and participation in civil society on a regional and even national scale came within reach.

Until the First World War cycling patterns and the bike's public image were rather similar in the Western world. Class distinctions and national differences made their influence felt, however, when, from the 1920s on, it became a utilitarian vehicle for the masses. Cycling changed from a fashionable and exciting pursuit into daily routine. In

Great-Britain, France, Germany and America, the upper and later also the middle class increasingly distinguished themselves from the pedalling working class by switching from the bicycle to motoring. The car began to embody modernity, whereas the two-wheeler was downgraded to the status of an outmoded and inferior 'humble utensil' or the 'poor man's vehicle'.

It was the changing public image rather than a decline of the actual volume of cycle traffic – which peaked in the 1940s and 1950s in many parts of the Western world – that generated the devaluation of wheeling. Policymakers, traffic engineers and urban planners, backed up by the growing motoring lobby, largely excluded cycling from their perspective. The result was that the advance of cars forced most cyclists off highways. Pedalling was more and more considered as dangerous and irresponsible. In the English-speaking nations as well as in the Mediterranean (and to a lesser extent Germany), where cycle levels dropped to the lowest in the Western world, the bicycle became foremost a children's toy, a means of transport for those who cannot drive or afford a car (youngsters and students) and a fringe mode for losers and eccentrics, or, on the other hand, a tool for sportive recreation and racing (the overwhelmingly male 'Lycra-and-helmet, daring-and-sweaty' activity) and, nowadays, also the trendy lifestyle vehicle for yuppies ('cycle chic'). Bicycle policies and infrastructures, if they exist at all, do not elicit broad support. In the public perception of utilitarian cycling, negative valuations as abnormal, inferior, unsafe, uncomfortable and (too) strenuous stand out. The relatively small minority of regular cyclists share a strong identification with their vehicle and pronounced motives, such as environmental awareness, healthy living and social criticism. All of these associations and images, which to a large extent are class- and status-related, hamper the acceptance of the bicycle as a mainstream transport mode.

Whereas in France, Belgium and Italy cycle racing – the bike as a 'record-breaker' – has been a source of national pride since the early twentieth century, the Netherlands and Denmark came to be regarded by their own populations as well as others as bicycle nations *par excellence*. In the last two countries the development of cycling was different from that in other Western countries. Its lasting popularity in daily traffic was not only related to favourable geographical and spatial conditions, effective bicycle policies, and absence of large automobile industries. The socio-political meaning which was attached to the vehicle was crucial. In both countries cycling was associated with civil virtues and typical national qualities: independence, moderation, simplicity, practicality, diligence and perseverance. Think of the cyclist on a solid roadster struggling against the wind as the prototypical Dutchman. The bicycle was praised as an equalising and civilizing tool, as the 'democratic horse' for all ranks and file. The vehicle's diffusion among the working class did not entail that the middle class and policy-makers turned their backs on it. The promoted ideal of the cyclist was the respectable and responsible participant in traffic and public life. The democratic horse advanced the elevation of the lower orders as prudent citizens and their integration in the nation. All of this has contributed to the shaping of a bicycle culture in which practical wheeling is an

entrenched habit among all social strata, age-groups and genders. Riding a bike is hardly associated with a particular social position, status, lifestyle or political orientation. Apart from ethnic minorities, for most Dutch and Danes the usefulness (and for many also fun) of pedalling is self-evident.

The different national bicycle cultures which have emerged in the twentieth century are rooted in diverse long-term national trajectories which have shaped the collective meanings, perceptions and experiences of cycling. The variety of national patterns has hardly changed during the last two decades, even though governments across the Western world have launched cycling policies. Apart from building infrastructural facilities, such policies include the promotion of a favorable image of the bicycle as a healthy, sustainable and social means of transport.

Policymakers, traffic engineers, urban planners and most bicycle-researchers follow a technocratic approach. They believe that cycling is basically a matter of rational choice and that conscious decision-making can be stimulated by taking the appropriate measures based on technical expertise and design. However, the often assumed causal link between infrastructural planning and promotional activities on the one hand and the volume of bicycle use on the other has not been confirmed. Policies have failed to generate substantial increases of daily cycling in countries with low average levels of wheeling. And in countries with relatively high levels such policies have contributed to their consolidation rather than to further growth. The technocratic approach does not take into account that history and culture – enduring mobility patterns and habits as well as established public images of various means of transport – put limits on what cycling policies can realize in the short run. They are stuck in technological determinism in a similar way as the bicycle-historians Hadland and Lessing are.

Suggestions for further reading

Stoffers, M., Oosterhuis, H., & Cox, P. (2010). Bicycle history as transport history: the cultural turn. *Mobility in history: themes in transport. T2M Yearbook 2011,* 265-274.

Oosterhuis, H. (2016). Cycling, modernity and national culture: historiographical essay. *Social History, 41*(3), 1-16.